

Google SketchUp Design Project: Grades 10 - 12



This project works in any version of SketchUp.

This advanced design project uses many of SketchUp's drawing tools, and involves paying some attention to the exact sizes of what you're drawing. You'll also make good use of components. The final result: a dream bedroom, complete with furniture and a swimming pool.

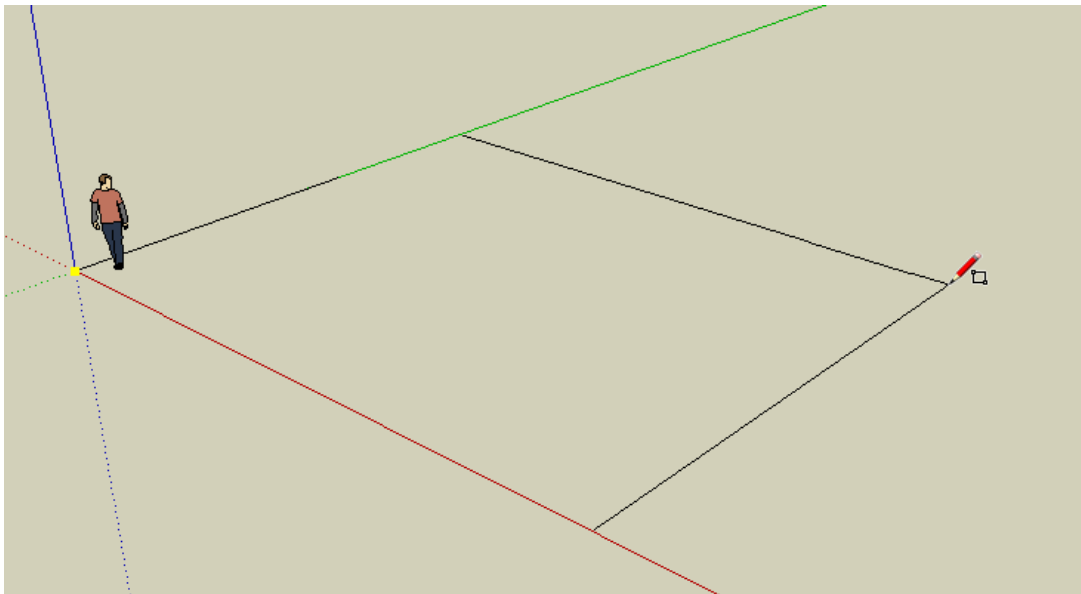
Once you understand how this room is built and furnished, the concept can be applied to anything - a dream classroom, dream rec room, dream bathroom, dream gym, etc. It's a very fun project; kids really get to exercise their creativity designing and furnishing spaces they'd like to live in!

If you need some basic information on downloading Google SketchUp, or about its user interface and basic tools, please see our printable "Intro to SketchUp" PDF.

The PC version is at www.3dvinci.net/SketchUp_Intro_PC.pdf.

The Mac version is at www.3dvinci.net/SketchUp_Intro_MAC.pdf.

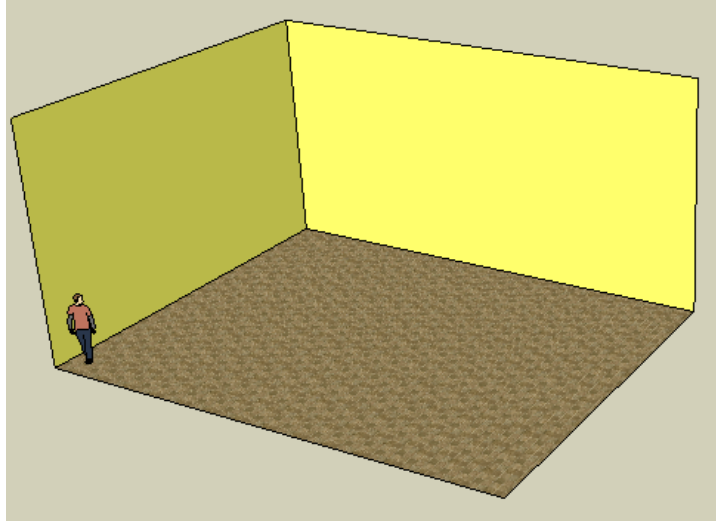
1. This bedroom will be pretty big, so if you have a person in your model, leave him or her there as a basis for size. Make a rectangle for the basic room shape, but don't click to finish it yet.



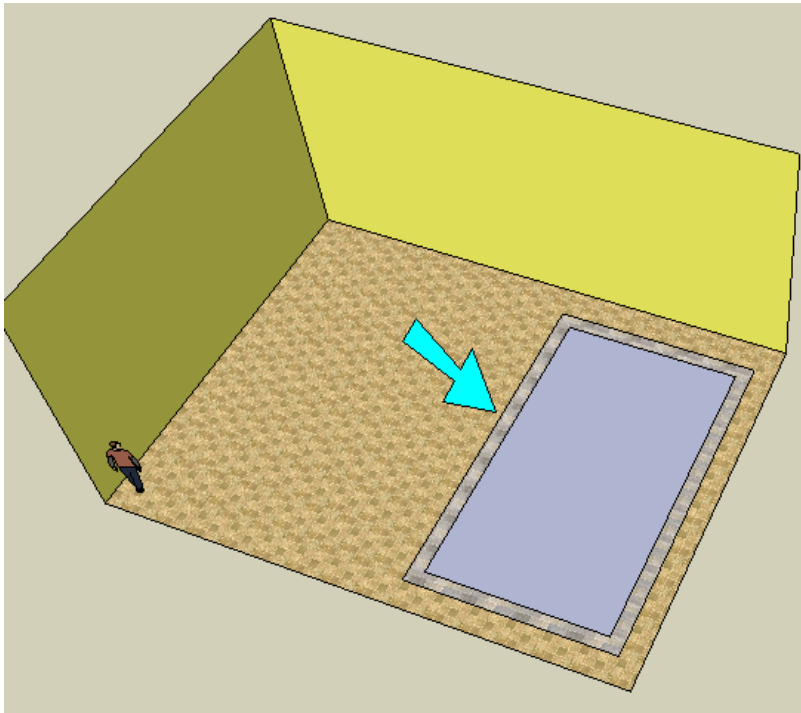
2. Many of SketchUp's tools can use exact numbers. While you're using the **Rectangle** tool, look at the **Dimensions** box below the SketchUp window. You'll see the length and width of the rectangle change while you move the mouse. Make this rectangle about 30 feet wide and 40 feet long. (If you want the numbers to be exact, you can type them in and press Enter. Be sure to include the apostrophe foot symbol, and separate the two numbers with a comma.)

Dimensions 40' 5", 30' 3 3/4"

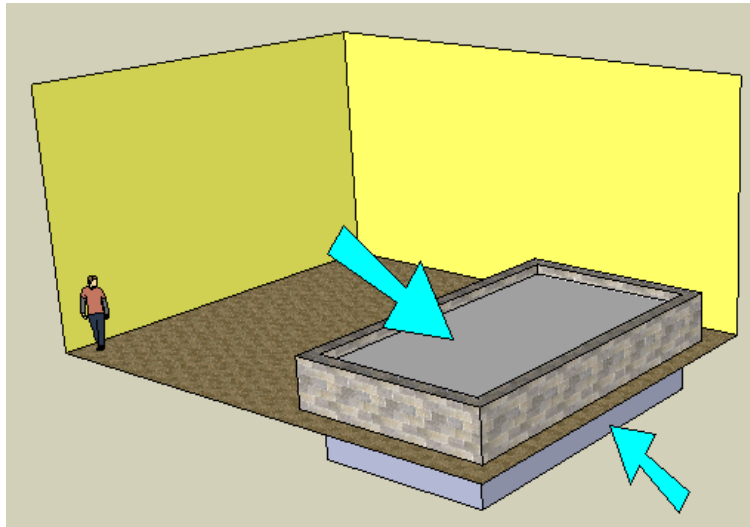
3. The bedroom will be a loft (it has two levels), so pull the rectangle up about 20 feet. Erase edges so that the ceiling and two walls disappear, enabling you to see inside.



4. About half of the lower level will be filled with a swimming pool (because no bedroom is complete without one). Use **Rectangle** to make the shape. To make the outline, you can make another rectangle, or use the **Offset** tool.

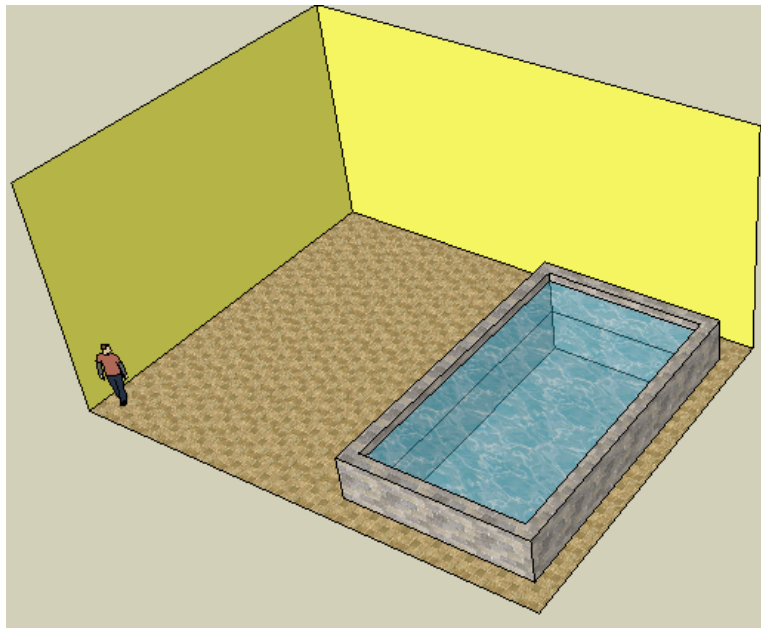


5. Pull up the pool walls, and pull up the floor to make the water line. When you use **Push/Pull** for this, keep the Ctrl / Option key pressed. This means that the bedroom floor will stay intact, instead of being “sucked up” with the pool objects. (Try it first without the Ctrl / Option key to see the difference). If the water doesn’t seem deep enough, pull the bedroom floor down (*without* the Ctrl / Option key).

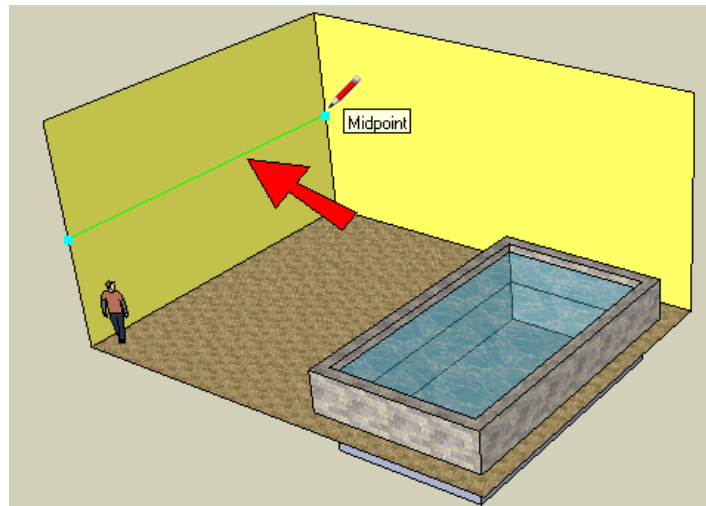


Yes, it looks weird to have a pool sticking out below the floor. But at the end, you can place a large square of grass or concrete around the room, which will hide the bottom of the pool.

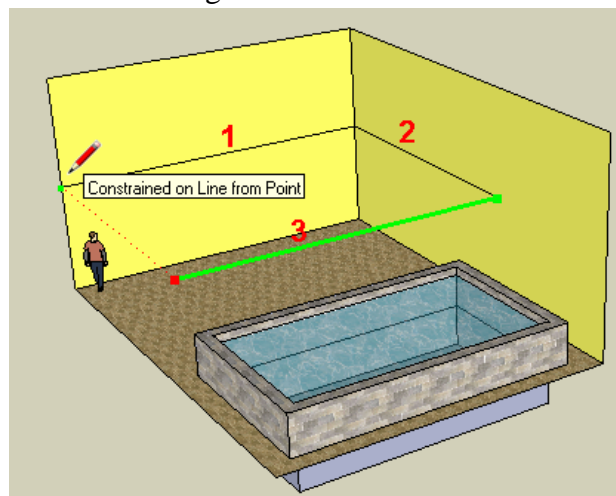
6. There is a “Water” folder for materials, which contains one translucent water material. Use this for the face of the water line, and you can see through to the bottom of the pool.



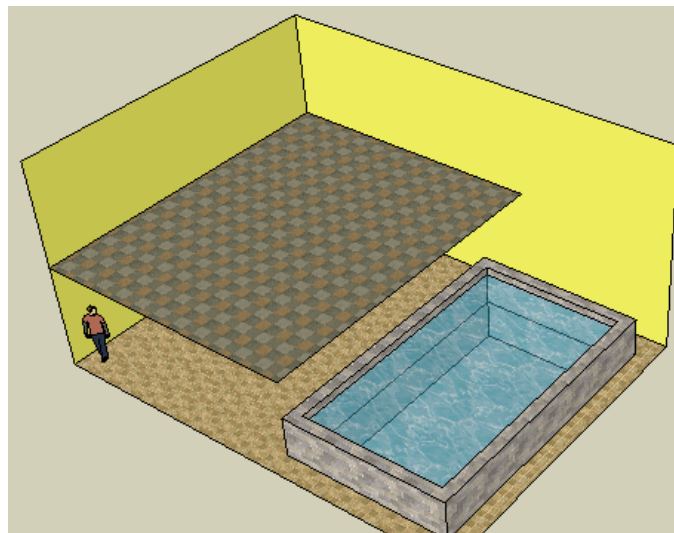
7. Now we can make the loft floor. It will be a simple rectangle which extends as far as the pool below. Start with a line along one wall like this:



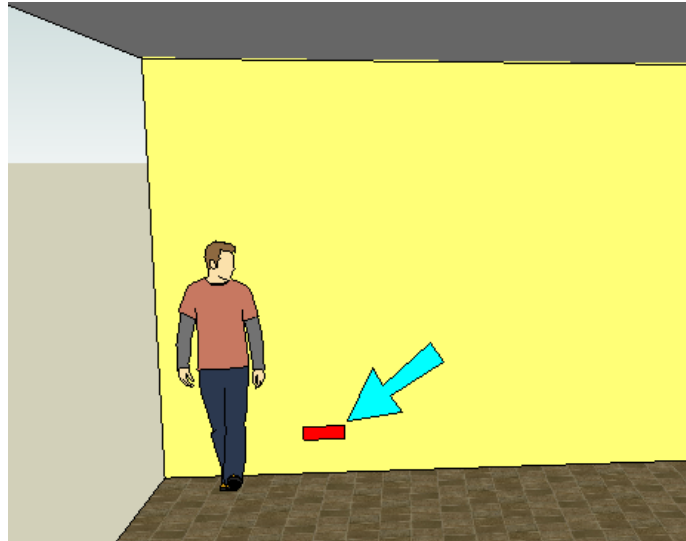
8. Make the floor long enough to hang a little over the pool (Line 2). When you make Line 3, start drawing in the direction you want the line to go (green, in my example). Press Shift to “lock” the direction, and click the first point of Line 1. This sets the exact length of Line 3.



9. Complete the last line to finish the loft floor.



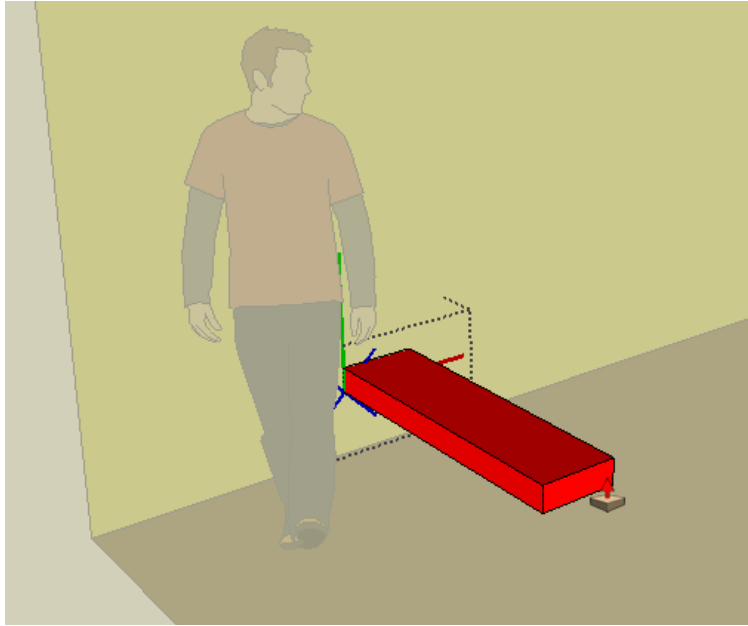
10. Now we need steps to get up to the loft. Steps are MUCH easier when you use components. Start with a small rectangle along the wall, for the first step. (If you're using exact numbers, it should be about 12" x 2".)



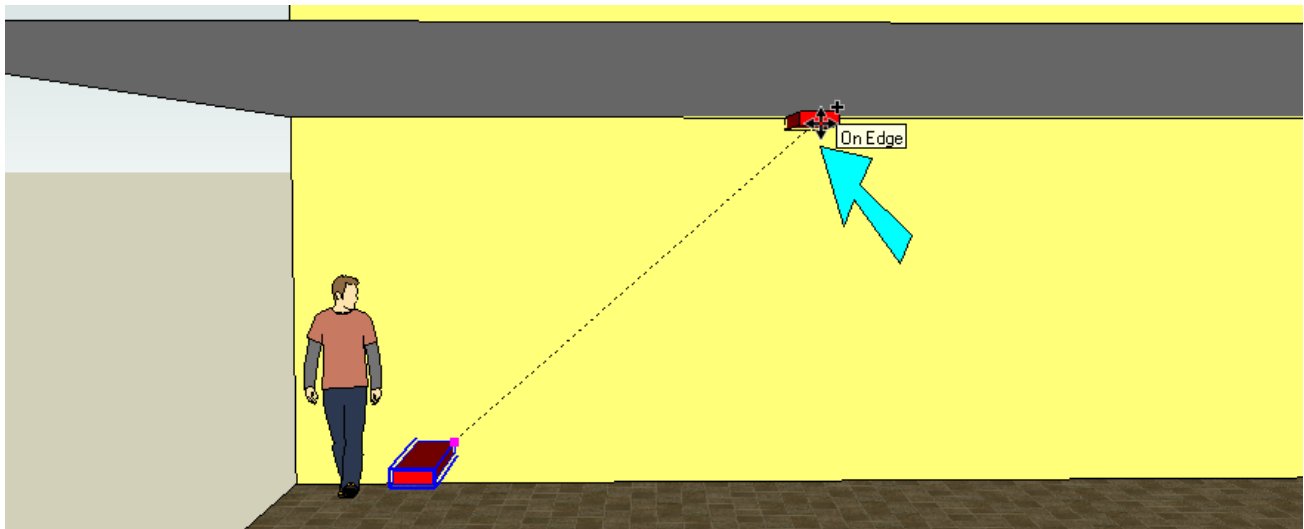
11. **Select** this small face plus its edges and make it a component.



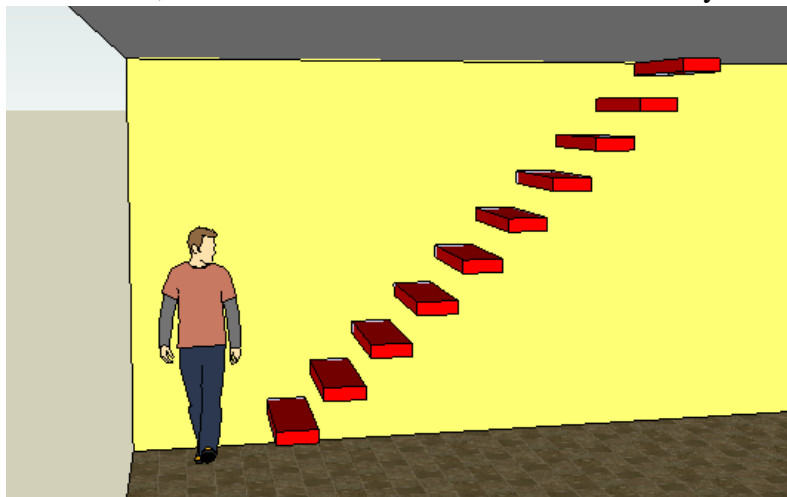
12. Edit the component, and pull the step out about 4 feet.



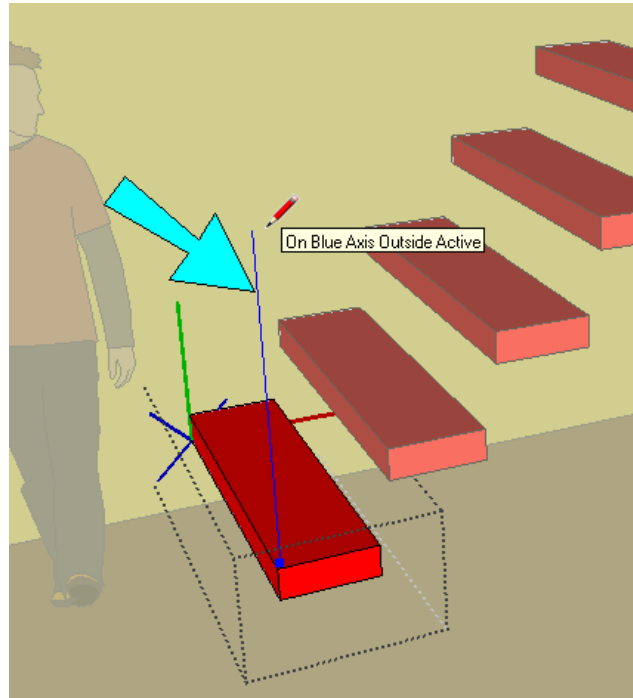
13. Close the component, and then make one copy at the top of the loft floor.



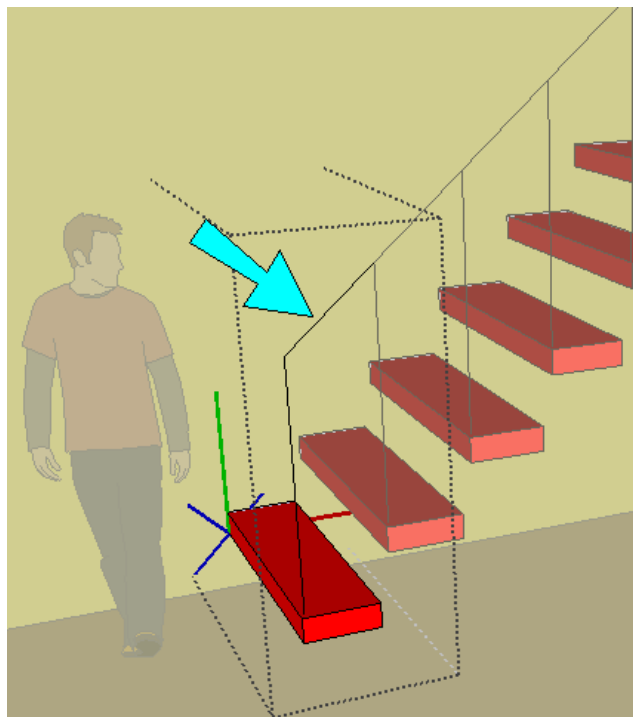
14. To make all the steps in between, enter "9" or whatever number works for you.



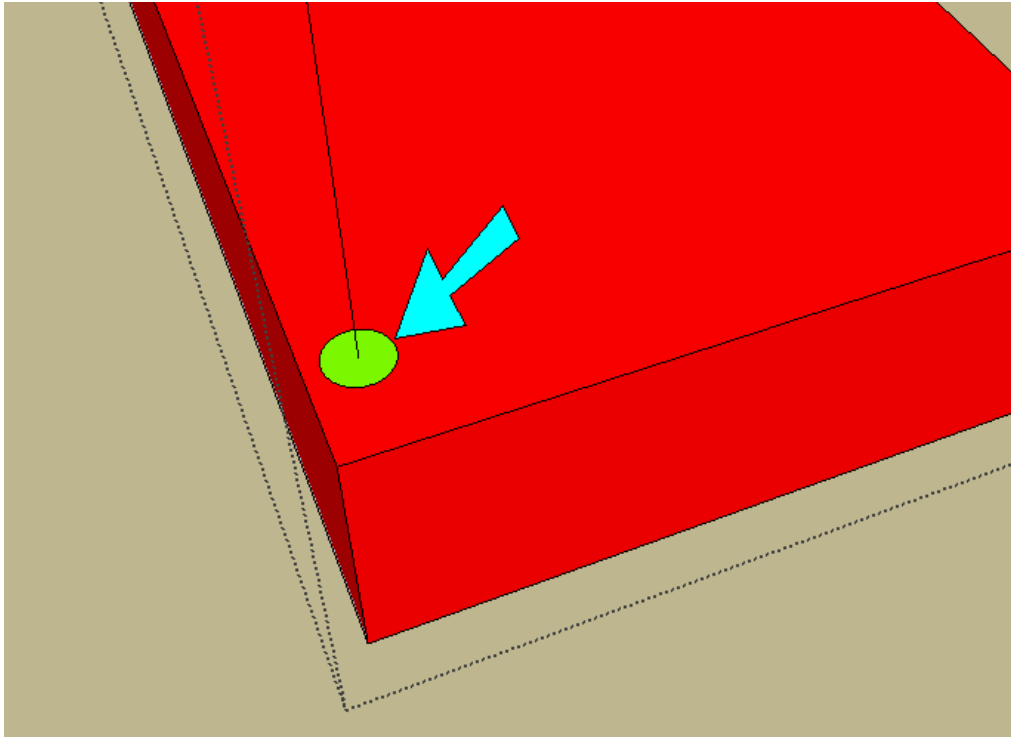
15. Components are also great for making railings. Edit any step, and draw a vertical (blue) line in the lower corner, about 3 feet high.



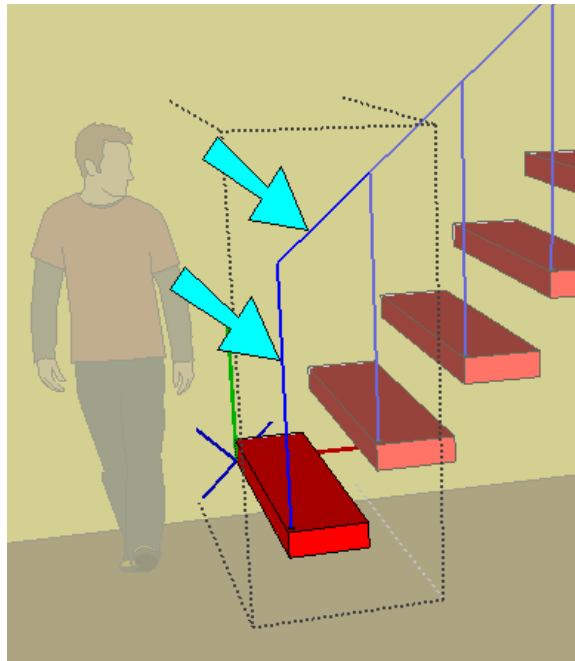
16. Then add a line connecting one vertical line to the next.



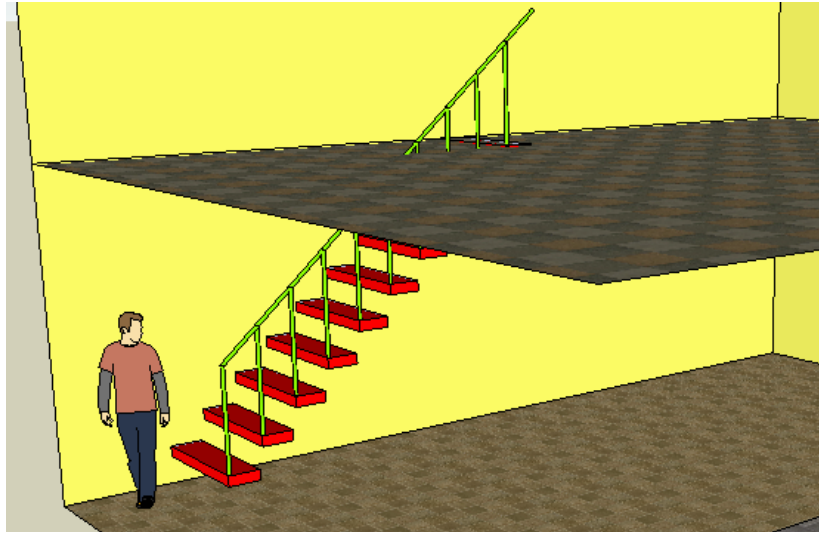
17. At the base of the vertical line, make a small circle.



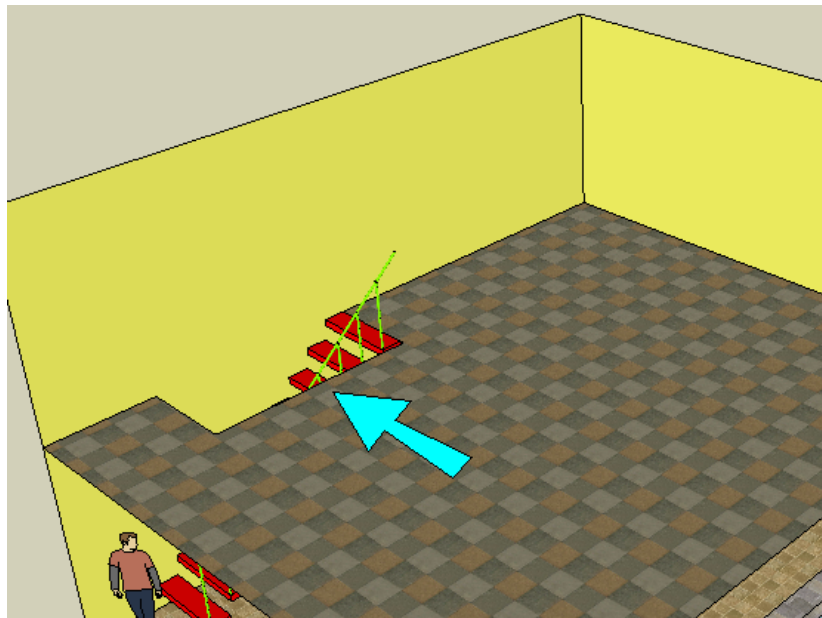
18. **Select** both of the lines you made before.



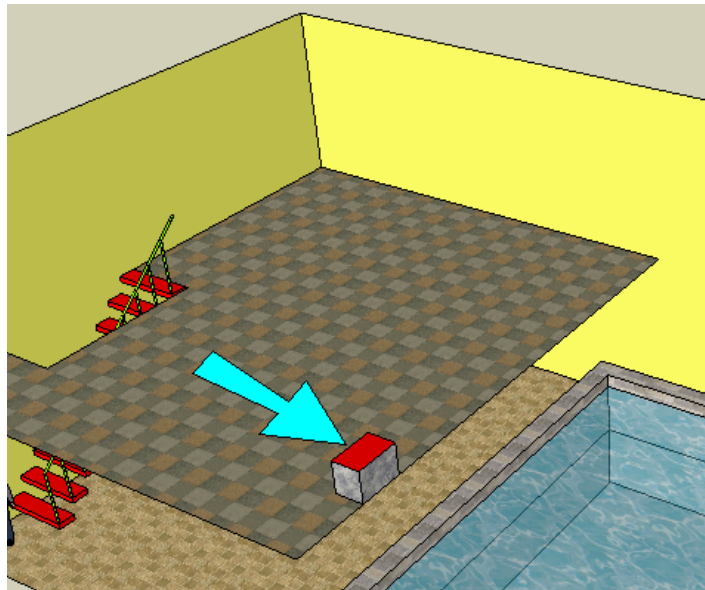
19. Activate **Follow Me** (**Tools / Follow Me**) and click the circle. The circle is pushed along the vertical and diagonal lines, creating a railing at every step.



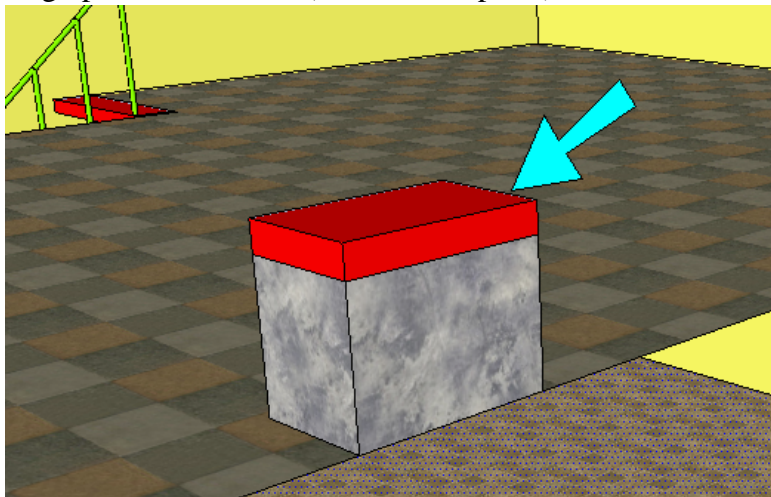
20. We want to go up the steps without hitting our heads on the floor above, so cut a hole out of the loft floor.



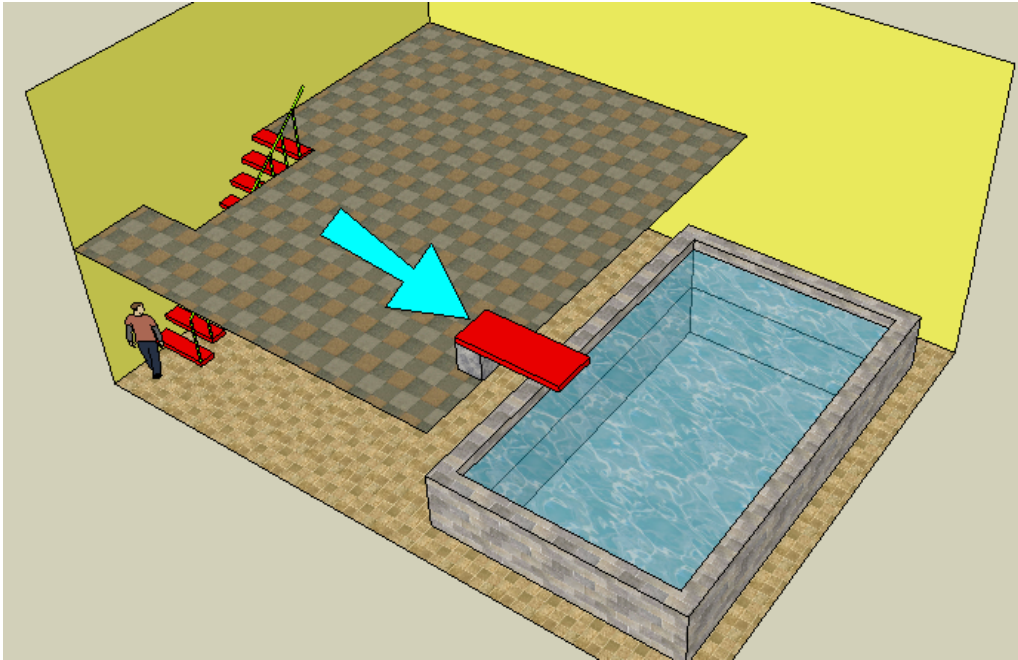
21. If you're too lazy to go down the steps to take a dip, you'll want a diving board on the loft level. Make a block like this (remember to press Ctrl / Option when you use **Push/Pull**) and paint the top the color you want to use for the board.



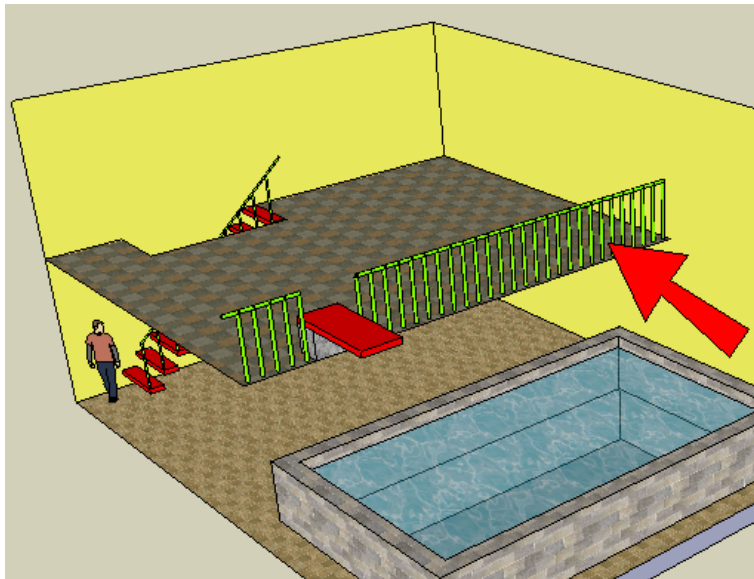
22. Start the board by pulling up a little like this (with Ctrl / Option):



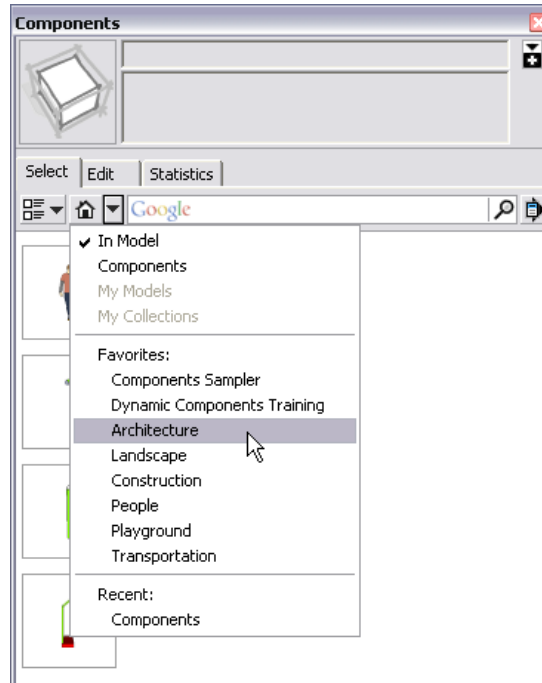
23. And pull the board out, making sure it hangs over the pool.



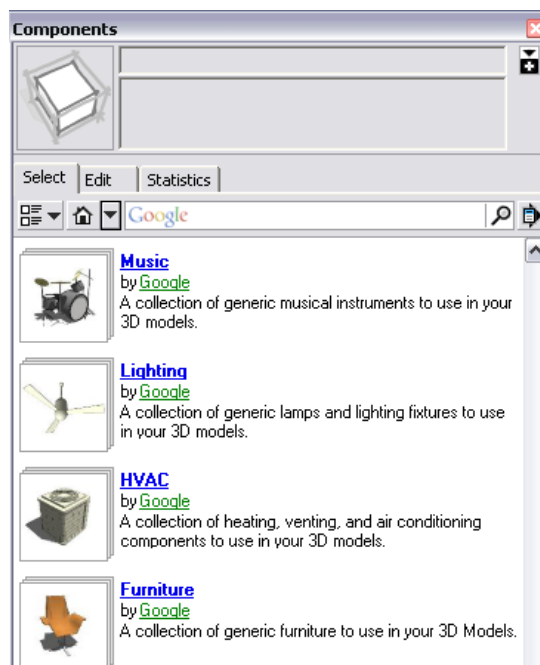
24. If you don't want to roll out of bed and fall into the pool, use components and **Follow Me** to make a railing.



25. For the rest of the furniture, we'll use some models provided by Google. In the **Components** window, click the drop-down arrow next to the house icon, and choose **Architecture**.

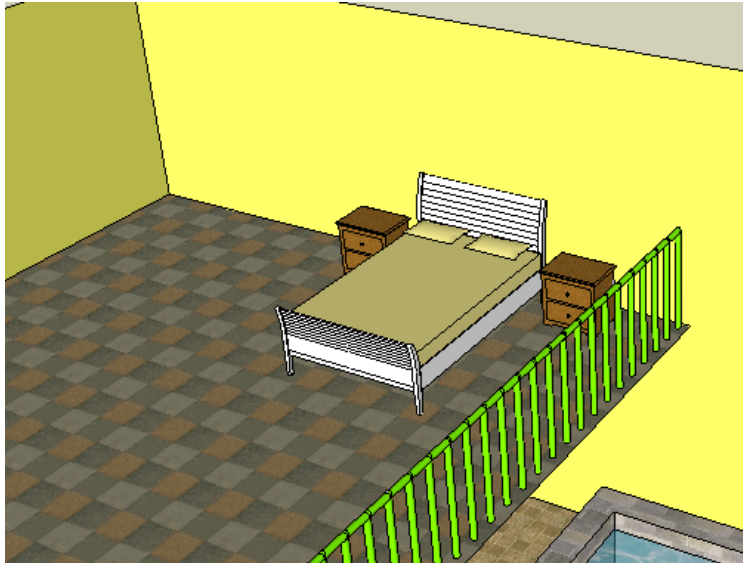


26. The “Architecture” collection contains other collections of objects like windows, plumbing, lighting, and games. Clicking the thumbnail of a collection will open the collection within the **Components** window. Clicking the collection name will open the collection in your Internet browser. When you open a collection and find a model you want to bring into your room, click the model’s thumbnail, and the model can be dragged right into the model.

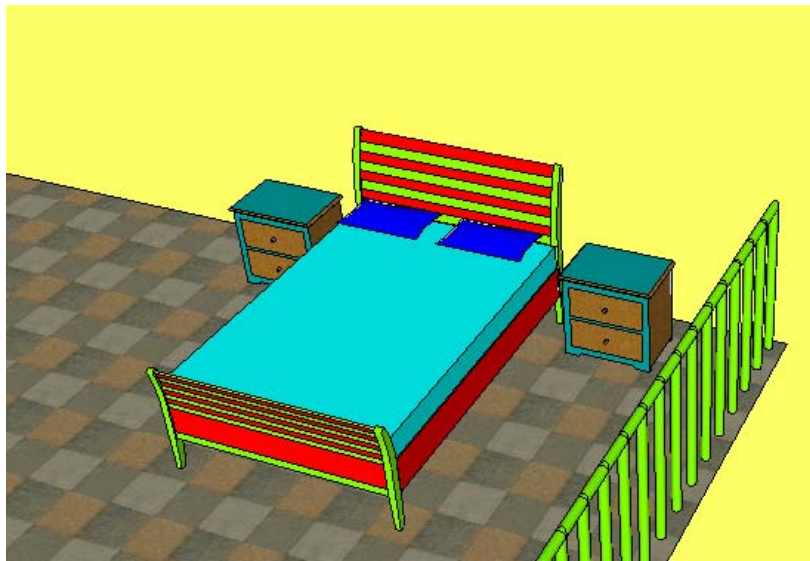


The collections you open this way contain basic, generic, models that have the correct dimensions and are modeled properly. To find other models, you can use the Search field in the **Components** window. But keep in mind that some models in the 3D Warehouse don't have the correct scale, and the quality is not guaranteed.

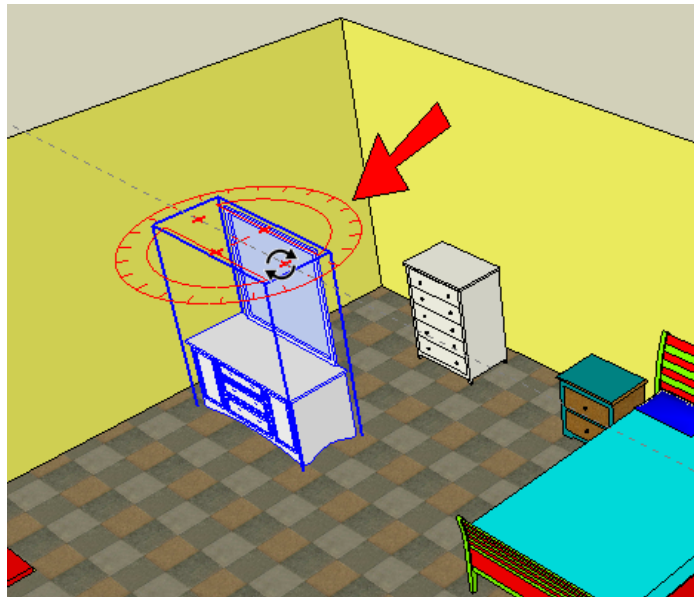
27. Fill both levels of the bedroom however you want. For example, the “Architecture” collection contains collections for beds and dressers.



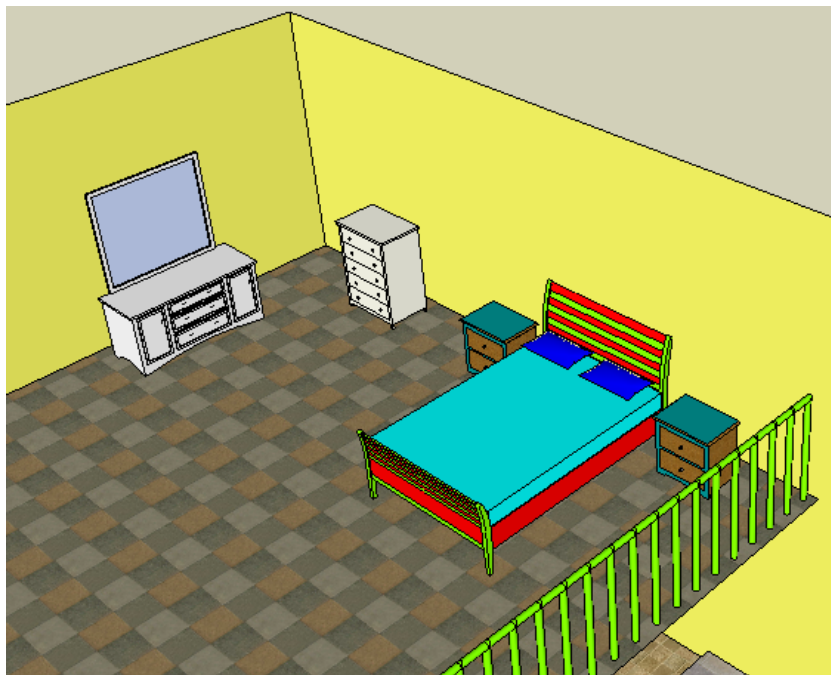
28. If you want to change any of these components, just edit them. For example, I changed the colors of the bed and tables.



29. When you drag in a component from the **Components** window, the active tool is **Move** so that you can place the component and slide it around. If you place your cursor over one of the red “plus” signs, you can also **Rotate** your component, like the dresser below:



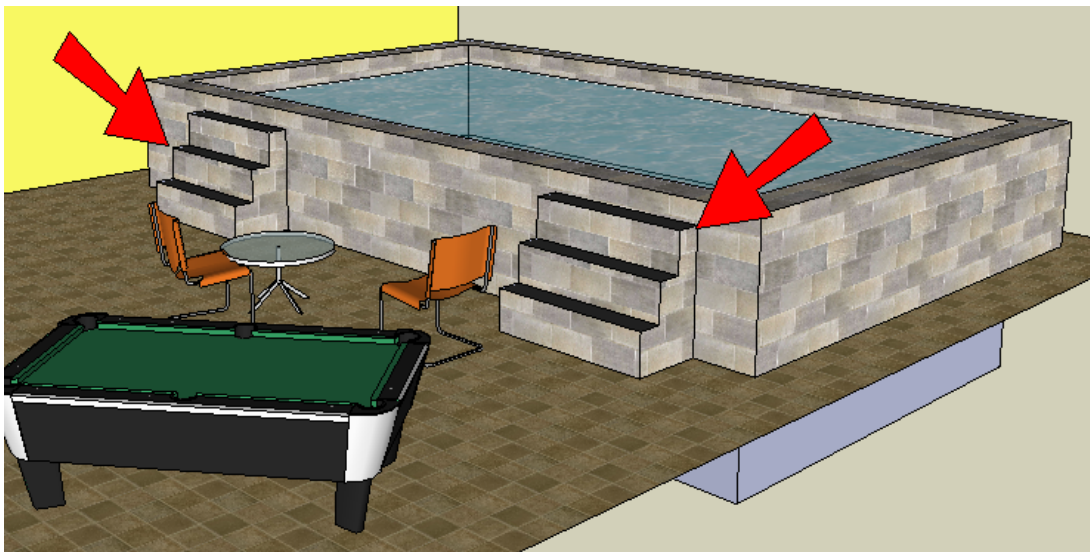
This is how my bedroom furniture looks:



30. Here's what I put downstairs, including a fridge from the "Appliances" collection, a flat-screen TV from "Electronics," and a pool table from "Games."



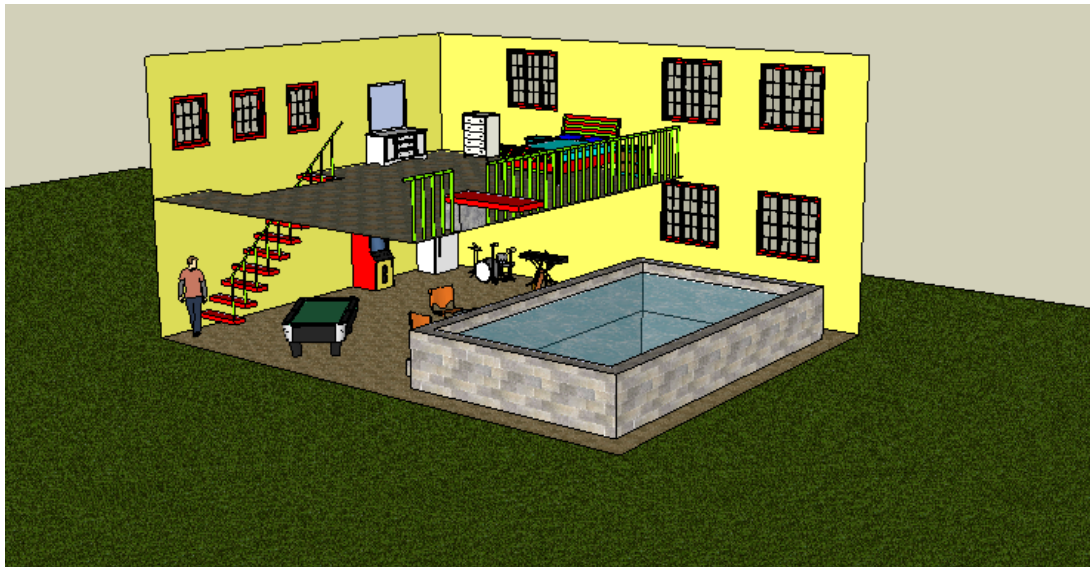
31. And don't forget steps to get up to the pool.



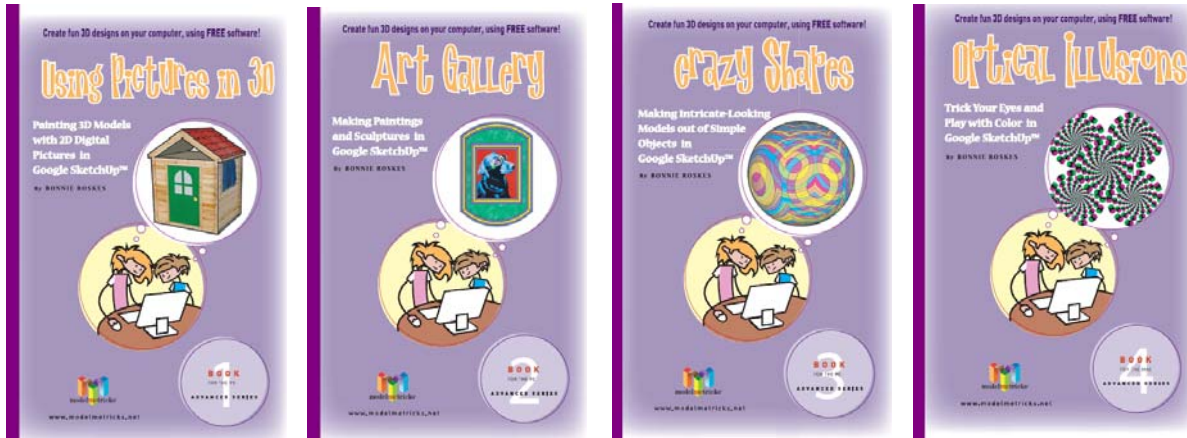
32. Finish up by adding some windows.



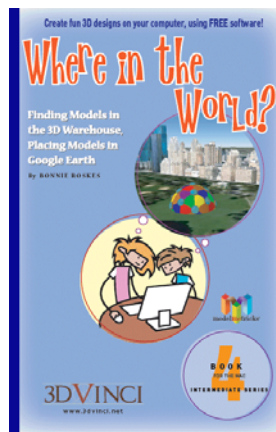
33. If you want to hide the bottom of the pool, add a large patch of grass on the ground (the material is in the “Vegetation” folder).



If you like this project, please check out 3DVinci's ModelMetrics Advanced Series (http://www.3dvinci.net/ccp0-prodshow/MAB_PDF.html). This age group is capable of creating quite complex models, and making use of geometric concepts, digital images, and sophisticated color usage.



And the book Where in the World? (http://www.3dvinci.net/ccp0-prodshow/MI4_PDF.html) will show you how to find the exact model you're looking for, in Google's 3D Warehouse.



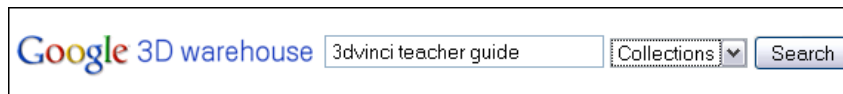
And if you want to receive three ready-to-use projects like these each month, sign up for our SketchUp Projects of the Month subscription (<http://www.3dvinci.net/ccp0-prodshow/POM.html>).

All of the models in the Teacher Guide can be downloaded from Google's 3D Warehouse:
<http://sketchup.google.com/3dwarehouse>.

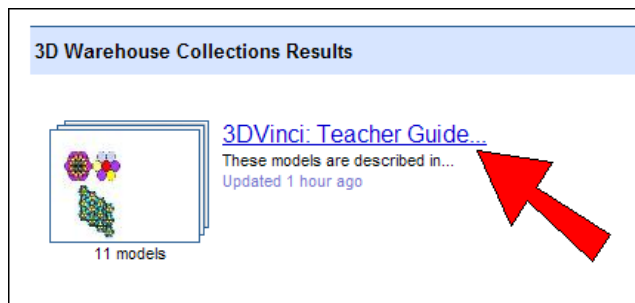
- Click [this link](#) to see the entire Warehouse collection of models used in the Teacher Guide.
- Click [this link](#) to locate this exact bedroom model in the Warehouse.

If you're reading this as a printed PDF and can't click on the links, here's how to find the Teacher Guide models:

1. Open the 3D Warehouse.
2. In the **Search** field, type "3dvinci teacher guide" and choose **Collections**. Then press Enter or click the **Search** button.



3. Open this link:



4. In the collection, find the model you want, and open or download it.